CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/33 Paper 3 (Core), maximum raw mark 96

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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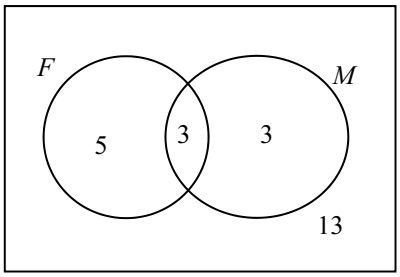
CAMBRIDGE
International Examinations

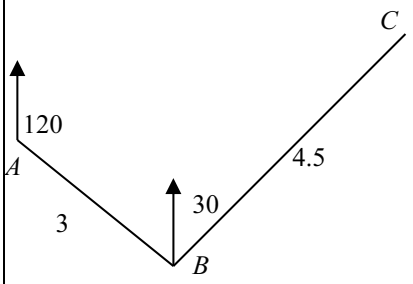
Abbreviations

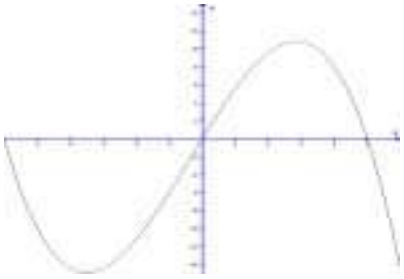
cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

1	**(a)**	12, 14 or 16	**1**	
	(b)	13	**1**	
	(c)	14	**1**	
	(d)	12 or 14	**1**	
	(e)	16	**1**	
	(f)	15	**1**	
2	**(a)**	6.21 or 6.207 to 6.208	**1**	
	(b)	144	**1**	
	(c) **(i)**	348.4	**1**	
	(ii)	350	**1**	
	(d)	0.3 33% 3.33×10^{-1} $\frac{1}{3}$	**2**	**B1** for 2 numbers in correct place
3	**(a)**	35	**1**	
	(b) **(i)**	40	**1 FT**	**FT** 75 – *their* **(a)**
	(ii)	114% or 114.2 to 114.3	**2 FT**	**M1** for *their* $\frac{40}{35}$
	(c) **(i)**	60	**2**	**M1** for finding 20% of 75 or 0.8 × 75oe
	(ii)	20	**2 FT**	**B1** for 4.80 seen or 480

4	**(a)**	4 1 2 8 9 5 2 5 5 6 9 6 2 3 4 4 5 5 7 3 3 3 7 8	**3**	**B2** for 1 misplaced or omitted **B1** for correct but not ordered or for 1 row correct
	(b) (i)	burger	**1**	
	(ii)	22	**2**	**M1** for $\frac{132}{360} \times 60$ oe
5	**(a) (i)**	16	**1**	
	(ii)	4	**2**	**M1** for correct first step
	(b) (i)	–5.46	**2**	**M1** for 3.4(–2.1) + 2.8(0.6) or **B1** for –7.14 or 1.68 seen
	(ii)	$[N=]\frac{M-3.4L}{2.8}$	**2**	**M1** for a correct rearrangement **M1** for correct division by 2.8
	(c) (i)	n^{12}	**1**	
	(ii)	$4y^6$	**2**	**B1** for $4y^k$ or ky^6
6	**(a)**	Correct shapes	**2**	**B1** for each
	(b)	6, 9, 12, 15, 18	**2**	**B1** for 3 correct **FT** *their* areas for shapes 5 and 6
	(c)	$3n$ oe	**1**	
7	**(a)**	3 2 4 6 1	**2**	**B1** for 3 correct
	(b) (i)	5	**1**	
	(ii)	6	**1**	
	(iii)	4	**1**	
	(iv)	3.73 or 3.727 …	**2**	**M1** for *their* $\sum fx \div 22$
	(v)	3	**2**	**M1** $Q_1 = 2$ or $Q_3 = 5$

8	**(a)**		**2**	**M1** for 2 areas with correct numbers
	(b) (i)	5	**1 FT**	
	(ii)	13	**1 FT**	
9	**(a)**	$\left[\frac{2}{3}\right]$ $\frac{1}{3}$ $\frac{3}{4}$ $\frac{1}{4}$ $\frac{9}{10}$ $\frac{1}{10}$	**3**	**B1** for each branch
	(b)	$\frac{1}{30}$ oe	**2**	**M1** for $their\left(\frac{1}{3}\times\frac{1}{10}\right)$
	(c)	$\frac{4}{5}$ oe	**3**	**M2** for $\frac{2}{3}\times their\frac{3}{4}$ + $their\left(\frac{1}{3}\times\frac{9}{10}\right)$ **M1** for $\frac{2}{3}\times their\frac{3}{4}$ or $their\left(\frac{1}{3}\times\frac{9}{10}\right)$ seen
10	**(a) (i)**	$\frac{3}{4}$ oe	**1**	
	(ii)	(0, 2)	**1**	
	(iii)	$\left(-\frac{8}{3}, 0\right)$ oe	**2**	**M1** for $\frac{3}{4}x=-2$ or correct sketch
	(b)	$y=\frac{3}{4}x-3$ oe	**1**	

11	**(a)**		**2**	**B1** for 2 correct
	(b)	5.41 or 5.408...	**2**	**M1** $\sqrt{3^2+4.5^2}$
	(c)	[0]64	**3**	**M1** for $\tan x = \frac{4.5}{3}$ oe **M1** for 120 – *their* 56.3
12	**(a)**	50.3 or 50.26 to 50.27	**2**	**M1** for $2\times\pi\times8$
	(b)	201 or 201.0 to 201.1	**2**	**M1** for $\pi\times8^2$
	(c)	$\frac{360}{8}[=45]$	**1**	
	(d)	67.5	**2**	**M1** for 180 – 45
	(e)	135	**1**	
	(f) (i)	$\sin 22.5 = \frac{x}{8}$ oe	**M1**	
		6.122 to 6.123	**A1**	
	(ii)	22.6 or 22.62 to 22.63	**4**	**M3** for $\frac{1}{2}\sqrt{8^2-3.06^2}\times6.12$ oe or **M2** for $\sqrt{8^2-3.06^2}$ or **M1** for implicit version
	(iii)	181 or 180.8 to 181.0	**1 FT**	**FT** from *their* **(f)(ii)** × 8

13 (a)		**2**	**B1** for correct cubic shape min then max
(b) (i)	(–6, 0) (0, 0) (5, 0)	**2**	**B1** for 2 correct
(ii)	(–3.51, –14.9) or (–3.513.., –14.88 to –14.87)	**2**	**B1** for each co-ordinate
(c)	–14.9	**1 FT**	